Title: Generating random data from biometric samples
Author: Bc. Romana Sachová
Department: Department of Algebra
Supervisor: Ing. Mgr. Zdeněk Říha, Ph.D.
Supervisor's e-mail address: zriha@fi.muni.cz

Abstract: This thesis aims to achieve the generation of random data from the biometric samples. Studying the biometric characteristics, randomness and generation of random data suitable for cryptography as well the variability of fingerprint, iris, face and human voice. In the practical part has been tested the variability of 200 prints from the same finger, using three factors: 1) The coordinates of fingerprints cores. Due to the repeatability of coordinates the obtained entropy was low. 2) Fingerprint area approximation. It was able to verify the diversity of all areas. The maximum available entropy remains around 15 bits. 3) Ridge lines distortion. From the core to the top of the fingerprint has been taken boxes containing part of the ridge line. For all boxes was calculated the average phase angle of the gradient which represents the change of intensity in the box. Vector of phase angles describes the ridge line distortion. Maximum estimated entropy of this vectors was estimated at 71,586 bits.

Keywords: biometry, randomness, entropy